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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,965	12/08/2003	Mark M. Leather	0007057-0043	3662

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EXAMINER	
MONESTIME, MACKLY	
ART UNIT	**PAPER NUMBER**
2676	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/730,965	LEATHER ET AL.	
	Examiner	Art Unit	
	Mackly Monestime	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-39 are presented for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 14 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Morgan et al (US Patent No. 6,384,824).

4. As per claims 1, 14 and 27, Morgan et al disclosed the invention as claimed, including an input interface for receiving a packet from a rasterizer (Fig. 6, Item No. 604, col. 8, lines 53-54); a shading processing mechanism configured to produce a resultant value from said packet by performing one or more shading operations (Fig. 6, Item No. 642; col. 4, lines 52-55), wherein said shading operations comprise both texture operations and color operations (col. 9, lines 19-30); and an output interface configured to send said value to a frame buffer (col. 9, lines 30-31).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-13, 15-26 and 28-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan et al in view of Zatz (US Patent No. 6,864,893).

7. As per claims 2-3, 15-16 and 28-29, Morgan et al did not explicitly disclose that the interface is using a valid ready protocol. However, it is well known in the art that a valid ready protocol is like a ready-for-data signal that is a control signal transmitted by a modem to a data terminal, showing that a connection exists for data to be transferred to or from another interface device. Moreover, Morgan et al disclosed a computer system having a communication interface that allows data to be transferred between computer system and external devices via communications path (col. 11, lines 21-32). Furthermore, Zatz disclosed an interface logic that generates write address and write control signals based on the protocol required by a register file (col. 7, lines 3-9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combined the cited references because doing so would provide a system having valid ready signal that serves both address ready and data ready signaling function, thereby enhance system's flexibility.

8. As per claims 4-5, 17-18 and 30-31, Morgan et al did not explicitly disclose a code partition mechanism to partition code configured to instruct said shading mechanism. However, coding refers to executable machine, which is the instruction of a

program that were converted from source code to instructions that the computer can understand. Moreover, Zatz disclosed a programmable shading pipeline, wherein the shading programs and pixel programs are sequences of program instructions compiled for execution within fragment processing pipeline (col. 4, lines 18-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the programmable shader of Zatz into the system of Morgan et al because doing so would provide a system being able to perform floating point computations such as triangle parameter interpolation and reciprocals and is optionally programmed to compute the interpolated pixel depth values.

9. As per claims 6-12, 19-25 and 32-38, Morgan et al disclosed the use of a state machine (col. 12, lines 12-14); but failed to disclose a plurality of ALU, texture machines; a register sub-system; and wherein memory structure is a FIFO that comprises both data and operation instructions. However, Zatz disclosed a plurality of arithmetic units, texture machine, and a register subsystem (col. 2, lines 38-40; col. 2, line 34-35; and col. 5, lines 25-27); and wherein memory structure is a FIFO that comprises both data and operation instructions (col. 5, lines 11-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references because doing so would provide a system being able to perform floating point computations such as triangle parameter interpolation and reciprocals and is optionally programmed to compute the interpolated pixel depth values.

10. As per claims 13, 26 and 39, Morgan et al did not disclose a plurality of additional unified shaders connected to said shader wherein said shader and said additional shaders unified are synchronized by a clock mechanism to process shading operations together. However, Zatz disclosed a plurality of additional unified shaders connected to said shader wherein said shader and said additional shaders unified are synchronized by a clock mechanism to process shading operations together (Fig. 3, Items No. 255, 310, 330 and 360; col. 5, lines 39-43). it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references because doing so would provide a system being able to perform floating point computations such as triangle parameter interpolation and reciprocals and is optionally programmed to compute the interpolated pixel depth values.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zatz et al (US Patent No. 6,724,394) taught a programmable pixel shading.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mackly Monestime whose telephone number is (571) 272-7786. The examiner can normally be reached on Monday to Thursday from 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bella Matthew, can be reached on (571) 272-7778.

Any response to this action should be mailed to:

Commissioner of Patent and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Mackly Monestime

Patent Examiner

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

April 28, 2005